



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 7

11201 Renner Boulevard
Lenexa, Kansas 66219

APR 28 2017

ACTION MEMORANDUM AMENDMENT

SUBJECT: Request for Change in the Scope of Response for the Removal Action at the Former Lyons Diecasting Site, Buckner, Jackson County, Missouri

FROM: Mike Davis, On-Scene Coordinator
Response and Removal North Section

THRU: Dave Williams, Chief
Response and Removal North Section
Kenneth S. Buchholz, Chief
Assessment Emergency Response and Removal Branch

TO: Mary P. Peterson, Director
Superfund Division

CERCLIS Number: MON000705886
Superfund Site ID: A7X3
Removal Category: Time-Critical
Nationally Significant: No

I. PURPOSE

The original Action Memorandum for this Site (attached) signed on April 4, 2016 requested approval for a fund-lead, time-critical removal action at the Former Lyons Diecasting site (Site). The purpose of this Action Memorandum Amendment is to request and document approval of a change in scope of the response.

As discussed in the April 4, 2016 Action Memorandum, multiple sources of PCB contamination were located at the Site, including two lagoons which were historically used for circulating cooling water. Sludge/sediment in the concrete-lined Lagoon 1 and Lagoon 2 contained total PCB concentrations as high as 160 mg/kg and 4.6 mg/kg, respectively. These concentrations exceeded standards prescribed by the Toxic Substances Control Act (TSCA), 15 U.S.C. § 2601 (15), and regulations promulgated in 40 C.F.R. § 761, and the site-specific, ecologically protective Cleanup Goals (CUGs) established in consultation with an EPA Region 7 ecological toxicologist. Consequently, Lagoons 1 and 2 were dewatered and the contaminated sludge/sediment was removed and disposed off site.

The proposed actions described in the April 4, 2016 Action Memorandum indicated that, after dewatering the lagoons and removing contaminated sediment, the retention structures in Lagoon 1 and Lagoon 2 would be demolished to render the lagoons inoperable, and then capped and graded to shed water. This course of action was proposed based on an assumption that PCBs in lagoon sediments were

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likely to have saturated the underlying concrete lagoon liner at concentrations exceeding standards prescribed by TSCA for porous surfaces, and would represent a long-term ecological risk if the lagoons continued to retain water and were returned to use as a habitat for migratory birds and aquatic and terrestrial organisms.

However, confirmation sampling of the base of Lagoons 1 and 2 suggests that the extent of PCB impact in the concrete lagoon liners is considerably less significant than anticipated. On February 28, 2017, two composite concrete-chip samples were collected from the base and sidewalls of Lagoon 1. On March 8, 2017, Lagoon 1 was gridded and concrete-chip samples were collected from each of 11 grid sections. Total PCBs were detected at a maximum concentration of 1.6 mg/kg, and the majority of grid samples contained less than 1 mg/kg total PCBs. On April 17, 2017, Lagoon 2 was gridded and concrete-chip samples were collected from each of 6 grid sections. Total PCBs in the Lagoon 2 liner were detected at a maximum concentration of 0.026 mg/kg. The concentrations of PCBs in the concrete liners of Lagoons 1 and 2 are well below the low-occupancy and high-occupancy cleanup levels, respectively, for porous surfaces prescribed by TSCA in 40 C.F.R. § 761.61(a)(4)(iii), and are below levels which would likely cause potential future sediment loads to exceed ecological cleanup goals or consensus-based sediment quality guidelines. A table summarizing the sampling results is attached.

Therefore, the proposed measures described in the April 4, 2016 Action Memorandum will be modified to keep Lagoons 1 and 2 intact, i.e., they will not be “demolished to render the lagoons inoperable and then capped and graded.” Additionally, the Action Memorandum includes, among other measures, institutional controls, which it is anticipated will be in the form of an environmental covenant with activity and use limitations (AULs) for PCB low-occupancy under TSCA for a building on site. These AULS will be extended to cover Lagoon 1.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

1. Removal site evaluation

See the April 4, 2016 Action Memorandum.

2. Physical location

See the April 4, 2016 Action Memorandum.

3. Site characteristics

See the April 4, 2016 Action Memorandum.

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

See the April 4, 2016 Action Memorandum.

5. National Priorities List (NPL) status

See the April 4, 2016 Action Memorandum.

See the April 4, 2016 Action Memorandum.

6. Maps, pictures, and other graphic representations

The Administrative Record for this response action contains all the documents which form the basis for this response action, including relevant Site maps, figures, and data summaries. The Administrative Record will be modified to include this Amended Action Memorandum.

B. Other Actions to Date

1. Previous actions

Most of the proposed response actions called for in the April 4, 2016 Action Memorandum have been completed, including actions related to (1) soil excavation, (2) the waste pit, (3) wetlands areas, (4) groundwater sampling, and (5) dewatering and removal of contaminated sludge/sediment from Lagoons 1 and 2. Response actions remaining to be completed include establishment of post-removal site controls.

2. Current actions

The removal actions summarized in the April 4, 2016 Action Memorandum are ongoing. The removal action start date was September 19, 2016; primary field activities are expected to conclude by May 2017.

C. State and Local Authorities' Roles

1. State and local action to date

See the April 4, 2016 Action Memorandum.

2. Potential for continued state/local action:

MDNR has agreed to take a lead role in design and implementation of post-removal site controls, including oversight in the development of institutional controls, as needed, to ensure conformance with the Missouri Environmental Covenants Act (MoECA), found in the Missouri Revised Statutes at sections 260.1000 to 260.1039, RSMo.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

See the April 4, 2016 Action Memorandum.

IV. ENDANGERMENT DETERMINATION

See the April 4, 2016 Action Memorandum.

V. PROPOSED ACTIONS AND ESTIMATED COST

A. Proposed Actions

See the April 4, 2016 Action Memorandum. The proposed measures described in the Action Memorandum will be modified to keep the retention structures of Lagoons 1 and 2 intact and to forego capping or filling the Lagoons.

B. Estimated Costs

See the April 4, 2016 Action Memorandum. No increase to the removal project ceiling is proposed.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

See the April 4, 2016 Action Memorandum.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

See the April 4, 2016 Action Memorandum.

IX. RECOMMENDATION

This decision document represents the selected removal action for addressing the hazardous substances at the Former Lyons Diecasting Site in Buckner, Missouri. The removal action was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This decision is based on the Administrative Record for the Site.

Conditions at the Site meet NCP Section 300.415(b) criteria for a removal action, and I recommend your approval of the proposed changes to the scope of work for this removal action.

Approved:



Mary P. Peterson, Director
Superfund Division

4-28-17

Date

Attachments

LAGOON CONCRETE CHIP SAMPLE DATA SUMMARY
FORMER LYONS DECASTING COMPANY SITE
BUCKNER, MISSOURI

Analyte	Clean up Goals	Sample ID and Results																		
		Lagoon 1											Lagoon 2							
		Lagoon 1 Base	Lagoon 1 Wells	Lagoon 1 Base 1	Lagoon 1 Base 2	Lagoon 1 Base 3	Lagoon 1 Base 4	Lagoon 1 Base 5	Lagoon 1 Base 6	Lagoon 1 Base 7	Lagoon 1 Base 8	Lagoon 1 Base 9	Lagoon 1 Base 10	Lagoon 1 Base 11	Lagoon 2 Base 1	Lagoon 2 Base 2	Lagoon 2 Base 3	Lagoon 2 Base 4	Lagoon 2 Base 5	Lagoon 2 Base 6
Sample Date	2/28/2017	2/28/2017	3/8/2017	3/8/2017	3/8/2017	3/8/2017	3/8/2017	3/8/2017	3/8/2017	3/8/2017	3/8/2017	3/8/2017	3/8/2017	4/13/2017	4/13/2017	4/13/2017	4/13/2017	4/13/2017	4/13/2017	
Sample Depth (inches)		0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
PCBs (mg/kg)	TSCA Cleanup Goals (High Occupancy : Low Occupancy)																			
Aroclor 1016	1 mg/kg : 25 mg/kg	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.0091 U	0.0091 U	0.0087 U	0.0086 U	0.0091 U	0.009 U
Aroclor 1221	1 mg/kg : 25 mg/kg	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.0091 U	0.0091 U	0.0087 U	0.0086 U	0.0091 U	0.009 U
Aroclor 1232	1 mg/kg : 25 mg/kg	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.0091 U	0.0091 U	0.0087 U	0.0086 U	0.0091 U	0.009 U
Aroclor 1242	1 mg/kg : 25 mg/kg	1.8	0.12	0.42	0.33	0.69	0.19	0.4	0.56	1.2	0.34	0.64	1.5	1.6	0.016 J	0.015 J	0.026 J	0.019 J	0.011 J	0.009 U
Aroclor 1248	1 mg/kg : 25 mg/kg	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.014 U	0.0091 U	0.0091 U	0.0087 U	0.0086 U	0.0091 U	0.009 U
Aroclor 1254	1 mg/kg : 25 mg/kg	0.023 U	0.023 U	0.024 U	0.023 U	0.023 U	0.024 U	0.023 U	0.023 U	0.024 U	0.023 U	0.023 U	0.024 U	0.024 U	0.0064 U	0.0064 U	0.0081 U	0.006 U	0.0064 U	0.0063 U
Aroclor 1260	1 mg/kg : 25 mg/kg	0.023 U	0.023 U	0.024 U	0.023 U	0.023 U	0.024 U	0.023 U	0.023 U	0.024 U	0.023 U	0.023 U	0.024 U	0.024 U	0.0064 U	0.0064 U	0.0061 U	0.006 U	0.0064 U	0.0063 U
PCBs, Total	1 mg/kg : 25 mg/kg	1.8	0.13	0.41	0.33	0.69	0.19	0.4	0.55	1.2	0.34	0.64	1.6	1.6	0.016 J	0.015 J	0.026 J	0.019 J	0.012 J	0.0063 U

Notes:
 Shaded result indicates the reported concentration exceeds the TSCA cleanup goal
 ID Identification
 mg/kg Milligrams per kilogram
 TSCA Toxic Substances Control Act
 U The analyte was not detected at or above the reporting limit



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11201 Renner Boulevard
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APR 04 2016

ACTION MEMORANDUM

SUBJECT: Approval for a Fund-Lead Time-Critical Removal Action at the Former Lyons Diecasting Site, Buckner, Jackson County, Missouri

FROM: Mike Davis, On-Scene Coordinator
Planning and Preparedness South Section

THRU: Kenneth Buchholz, Chief
Emergency Response & Removal South Branch

TO: Mary P. Peterson, Director
Superfund Division

CERCLIS Number: MON000705886

Superfund Site ID: A7X3

Removal Category: Time-Critical

Nationally Significant: No

I. PURPOSE

The purpose of this Action Memorandum is to request approval for a fund-lead, time-critical removal action at the Former Lyons Diecasting Site (the "Site"). The Site is a former petroleum pipeline pumping station and die-casting facility located at 2300 North Holly Road, in Buckner, Missouri.

Investigations conducted by the U.S. Environmental Protection Agency (EPA) and the Missouri Department of Natural Resources (MDNR) determined that former diecasting operations at the site resulted in contamination of facility structures and environmental media from polychlorinated biphenyls (PCBs), which are the subject of this removal action. As detailed below, the objective of this removal action is to protect public health, or welfare, or the environment by responding to the release of hazardous substances into the environment. PCB-contaminated wastewater oils and sludge, as well as soil exceeding the applicable action levels as detailed below will be removed, treated if necessary, and transported for disposal at a licensed facility. Facility structures may also require decontamination prior to reuse as prescribed by the Toxic Substances Control Act (TSCA), 15 U.S.C. § 2601 (15), and regulations promulgated in 40 C.F.R. § 761.

II. SITE CONDITIONS AND BACKGROUND

A. Site Description

1. Removal site evaluation.

There have been several past investigations at the Site. Previous investigations have included the following:

- In August 1999, MDNR conducted a Resource Conservation and Recovery Act (RCRA) inspection at the site. The facility was evaluated as a potential large-quantity generator of hazardous waste. A notice of violation was issued to the facility for failing to determine whether or not facility waste was hazardous.
- In October 2002, Triad Environmental Consultant Services (TEC) completed a Phase I Environmental Site Assessment (ESA) for the site. The ESA revealed evidence of recognized environmental conditions (REC) in connection with the property. Additional environmental investigations were recommended to determine if any adverse environmental impact was associated with the site.
- In December 2002, TEC completed a Phase II ESA. A soil sample from the property contained elevated levels of zinc. A recommendation was made to excavate the area of zinc contamination. The volume of soil to be excavated in this area was estimated to be less than 3 cubic yards.
- In March and November 2007, the MDNR Environmental Services Program (ESP) conducted two separate sampling events to determine if hazardous waste was present at the site.
- In October 2009, MDNR conducted a Preliminary Assessment/Removal Site Evaluation (PA/RSE) in order to delineate the extent of contamination and determine whether any contaminants had migrated from the site into groundwater or surface water. Based on the results of this investigation, MDNR recommended a time-critical removal action to address PCBs in the warehouse waste pit and surficial soil contaminated with PCBs at various locations around the warehouse. MDNR also recommended additional characterization to evaluate the surface water and groundwater pathways.
- In October 2010 and again in April 2011, EPA conducted sampling for a Site Investigation/Removal Site Investigation (SI/RSE) to expand on the October 2009 sampling conducted by MDNR. The results of this investigation indicate that site conditions pose a threat to human health and the environment, and warrant a removal action as per 40 Code of Federal Regulations (CFR) 300.415(b)(2) of the National Contingency Plan (NCP). Multiple PCB sources of contamination are located at the Site, including the waste pit located in the warehouse and the lagoon directly north of it. Concentrations of PCB Aroclor 1242 in the sludge and oil material stored in the waste pit exceed criteria required by TSCA for disposal of PCB remediation wastes. The sediment material in the lagoon immediately north of the warehouse had concentrations of the PCB

Aroclor 1242, RCRA metals, VOCs, SVOCs and TPH at levels exceeding background concentrations and poses a risk of migrating into nearby Fire Prairie Creek. The PCB and SVOC contamination presented in Appendix A, Figure 4 for soils directly north of the buildings pose contact risk for potential workers, and trespassers if the property remains unoccupied and unsecured. The interior of the warehouse was found to have levels of PCBs in the concrete and floor material exceeding TSCA benchmarks for reuse without controls. In addition, soil at the facility contains PCB Aroclors 1248 and 1254 at concentrations which exceed TSCA benchmarks for high occupancy areas.

2. Physical location

The Site is located in the northwest quarter of the southwest quarter of Section 18, Township 50 North, Range 29 west. The approximate geographic coordinates for the central portion of the site are 39.13914 degrees north latitude and 94.15872 degrees west longitude.

Land use in the area immediately surrounding the Site is primarily agricultural, wooded, and small residential communities. The northern and eastern portions of the Site are bordered by Fire Prairie Creek and are currently undeveloped. The west side of the property is lined with trees and dense vegetation. The southern side of the Site is bordered by the Union Pacific Railroad line and N Holly Road. There are six residences located within 0.15 mile south of the Site along N Holly Road, three of which are occupied by families with children, with the nearest residence approximately 200 feet from the Site. The 2000 Census data indicated that the population within 4 miles of the Site is approximately 4,381 persons. There are no schools or daycares identified within one-quarter mile. With regard to sensitive areas, the Site is bordered by Fire Prairie Creek, and there are approximately 10 acres of designated wetlands located on the Site.

3. Site characteristics

The former Lyons Diecasting facility operated on approximately three acres of a total 28.7 acres of deeded property. There is a lockable gate at the entrance on N Holly Road, but the majority of the site is unfenced and access is generally uncontrolled. The facility consists of four buildings, one concrete lined lagoon (Lagoon 1), one soil lined lagoon (Lagoon 2), two small ponds, gravel parking and facility access areas, an open area formerly used for secondary containment for above-ground storage tanks, and ancillary structures. Lyons manufactured aluminum and zinc castings from 1953 to approximately 2004. In 2004, Lyons entered foreclosure, and all manufacturing ceased. In 2007, the property was auctioned in four separate lots: one lot consisted of machinery; the second lot consisted of small equipment; the third lot consisted of scrap metal; and the fourth lot consisted of the property with the existing buildings. The property currently is vacant, but the owner plans to use the property as a sorting facility for a recycling operation.

4. Release or threatened release into the environment of a hazardous substance, or pollutant, or contaminant

Based on the results of sampling, a release to the environment associated with known activities at the former Lyons Diecasting facility has been established. The primary

contaminant of concern at the Site is PCBs, although PAHs and VOCs have been detected in waste and environmental media at the Site.

PCB Aroclors 1242, 1248, and 1254 are listed as hazardous substances pursuant to 40 CFR § 302.4. As such, they are a "hazardous substance" as defined in section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. § 9601(14).

5. National Priorities List (NPL) status

The Site is not currently on the NPL, nor is it proposed for listing on the NPL.

6. Maps, pictures, and other graphic representations

The Administrative Record for this response action contains all the documents which form the basis for this response action, including relevant Site maps, figures, and data summaries.

B. Other Actions to Date

1. Previous actions

Other than the environmental investigations discussed in II.A.1 above, there have been no previous response actions taken at this Site by EPA or MDNR. After purchasing the property in 2007, the current property owner discovered 43 drums of waste hydraulic oil on the property and arranged for disposal of the drums and contents by Universal Lubricants, LLC on February 12, 2009.

2. Current actions

There are no ongoing response actions at this Site to reduce the risks posed by the contamination.

C. State and Local Authorities' Roles

1. State and local action to date

MDNR conducted a series of environmental investigations at this Site. In a letter dated March 18, 2011, the state formally referred response actions related to this Site to EPA. MDNR has provided substantial assistance as a support agency and this assistance is expected to continue for the duration of the project.

2. Potential for continued state/local action:

MDNR intends to continue to provide assistance during this response action as a support agency. In addition, MDNR has agreed to take a lead role in design and implementation of post-removal site controls including oversight in the development of

institutional controls, as needed, to ensure conformance with the Missouri Environmental Covenants Act (MoECA), found in the Missouri Revised Statutes at sections 260.1000 to 260.1039, RSMo.

III. THREATS TO PUBLIC HEALTH OR WELFARE OR THE ENVIRONMENT AND STATUTORY AND REGULATORY AUTHORITIES

Section 300.415(b) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP) provides that EPA may conduct a removal action when it determines that there is a threat to human health, or welfare, or the environment based on one or more of the eight factors listed in section 300.415(b)(2). The factors that justify a removal action at the Site are outlined as follows:

300.415(b)(2)(i) – Actual or potential exposure to nearby human populations, animals, or the food chain from hazardous substances, or pollutants, or contaminants

Analytical results from samples collected by EPA indicate that hazardous substances have been released into the environment. PCBs were detected in surface soils up to 12,000 micrograms per kilogram ($\mu\text{g/kg}$). PCBs in sludge in Lagoon 1 were detected up to 160,000 $\mu\text{g/kg}$. Concentrations of PCBs in the waste pit sludge were detected as high as 926,000 $\mu\text{g/kg}$. Subsurface sampling outside the warehouse confirmed leakage of the waste pit to the environment. Concentrations of PCBs on structural materials inside the facility exceed the 10 micrograms per 100 square centimeters ($\mu\text{g}/100\text{ cm}^2$) and 1 milligram per kilogram (mg/kg) benchmarks promulgated in TSCA for high occupancy buildings. There are residences located within 200 feet of the Site. There are approximately ten acres of designated wetland on the Site. The Site is regularly accessed by a propane gas company who services and leases two propane gas ASTs at the site. Although currently vacant, the property is intended for reuse as a recycling center. Actual exposures may be occurring due to individuals accessing the Site, including the property owner and employees, trespassers, and nearby residents. There is a lockable gate at the entrance on N Holly Road, but the majority of the site is unfenced and access is generally uncontrolled. Potential human exposures are compounded when considering a future use scenario in the exposure assessment, including increased activity on-Site from industrial and commercial workers.

PCB contamination was found at high levels in an on-Site lagoon that was observed to be inhabited by turtles. The lagoons are freely accessible to migratory fowl, including potentially threatened and endangered species. PCBs are designated as persistent, bioaccumulative and toxic (PBT) pollutants due to their relatively high toxicity and their propensity to bioaccumulate in food chains and, thus, pose risks to human health and ecosystems. Any impacts to migratory or threatened and endangered bird species caused by uncontrolled exposure to PBT chemicals in the environment could represent a "taking" in potential violation of The Migratory Bird Treaty Act ("MBTA"), 16 U.S.C. § 701-12.

300.415(b)(2)(ii) – Actual or potential contamination of drinking water supplies

There are domestic wells located within 0.75 mile of the site. The high concentrations of PCBs in surface soils, the waste pit, and the lagoons are a potential source of groundwater

contamination as a function of the ratio of the chemical's sorbed concentration to the dissolved concentration. Due to the predominately insoluble nature of the PCBs in hydraulic oil, a significant release to groundwater is not expected to have occurred. Three pre-packed direct push monitoring wells were installed on the site. A groundwater sample from one of these wells, located in close proximity to the main warehouse between the building and Lagoon 1, contained concentrations of 1,1-dichloroethene and 1,2-dichloroethane exceeding federal drinking water standards and regional screening levels, respectively. The wells on the site were screened in the surficial water table at depth ranging from 28-34 feet below ground surface.

300.415(b)(2)(iv) – High levels of hazardous substances or pollutants or contaminants in soils largely at or near the surface that may migrate

PCBs were detected in surface soils at concentrations up to 12,000 µg/kg. Detected levels of PCBs in surface soil exceed applicable TSCA benchmarks for high-occupancy areas. For this reason, levels of PCBs in surface soils at the Site pose unacceptable human health risks. Even higher levels of PCBs were detected in sludge from Lagoon 1 and from the material in the waste pit. The concentrations of PCBs in these media represent a substantial human health risk in the event of prolonged dermal exposure or ingestion. PCB-contaminated soils may migrate via airborne dusts, surface runoff to nearby storm water conduits and surface water, and via worker activity transporting soils/dusts onto otherwise unimpacted areas of the site, vehicles, facility buildings, and residences. PCBs in the lagoons represent an uncontrolled pathway for surface runoff to nearby storm water conduits to Fire Prairie Creek, and there are reports of historical overflows from the on-site lagoons. PCBs in the sub-grade waste pit represent an ongoing uncontrolled release to the environment that poses a threat of migration to groundwater as discussed in 300.415(b)(2)(ii) above.

300.415(b)(2)(v) – Weather conditions that may cause hazardous substances, pollutants or contaminants to migrate

The site is bordered by Fire Prairie Creek, and there are historical drainage features connecting the Site to point-source discharges into the creek. Precipitation may cause contamination to migrate via surface runoff, and percolate into groundwater. There are 10 acres of designated wetland located on the Site.

300.415(b)(2)(vii) – The availability of other appropriate federal or state response mechanisms to respond to the release

The response actions at this Site were administratively referred to EPA by the state of Missouri in a letter dated March 18, 2011. There are no other state or federal authorities who are able to respond to the release of hazardous substances at the Site.

300.415(b)(2)(viii) – Other situations or factors that may pose threats to public health or welfare of the United States or the environment

In addition to the above-listed factors, EPA considered studies conducted which assess the effects of PCBs on human health. EPA also relies on widely accepted toxicological references and on case studies which assess human health effects. Animal studies have demonstrated exposure to PCBs resulted in various kinds of health effects, including anemia,

acne-like skin conditions, and liver, stomach, and thyroid illnesses and death. Other effects caused by PCBs in animals include reductions in the immune system function, behavioral alterations, and impaired reproduction. Some PCBs can mimic or block the action of hormones from the thyroid and other endocrine glands. Because hormones influence the normal functioning of many organs, some of the effects of PCBs may result from endocrine changes. PCBs are not known to cause birth defects. Only a small amount of information exists on health effects in animals exposed to PCBs by skin contact or breathing. This information indicates that liver, kidney, and skin damage occurred in rabbits following repeated skin exposures, and that a single exposure to a large amount of PCBs on the skin caused death in rabbits and mice.

Studies of workers provide evidence that PCBs were associated with certain types of cancer in humans, such as cancer of the liver and biliary tract. Rats that ate commercial PCB mixtures throughout their lives developed liver cancer. Based on the evidence for cancer in animals, the Department of Health and Human Services (DHHS) has stated that PCBs may reasonably be anticipated to be carcinogens. Both EPA and the International Agency for Research on Cancer (IARC) have determined that PCBs are probably carcinogenic to humans.

IV. ENDANGERMENT DETERMINATION

The actual or threatened release of a hazardous substance from this Site presents an imminent and substantial endangerment to the public health, or welfare, or the environment.

V. PROPOSED ACTIONS AND ESTIMATED COST

A. Proposed Actions

Due to the complexity of Site conditions and the variety of media impacted at the Site, EPA will initially develop a Removal Action Work Plan to implement the proposed actions outlined below. The Removal Action Work Plan will be developed in coordination with EPA's Emergency Response Team (ERT) and the Office of Research and Development (ORD), to assist in identifying process improvements and efficiencies wherever possible.

1. Proposed actions description

Soil Excavation – PCB-contaminated soil will be excavated and transported off the site for disposal. The objective of the action will be to achieve cleanup levels for bulk PCB remediation wastes (including soil, sediments, sludge, and debris) found at 40 C.F.R. §761.61(a)(4)(i). The cleanup level for contaminated soil will be less than or equal to 1 part per million (ppm) total PCBs for a "high occupancy area scenario," or 25 ppm total PCBs for a "low occupancy area scenario." High occupancy and low occupancy areas are defined at 40 C.F.R. §761.3 and are determined based on the exposure frequency and exposure duration for potential receptors. Different exposure scenarios may apply to different areas of the Site. The soil cleanup may include removal and disposal of historical drainage lines.

Disposal requirements for PCB remediation waste are promulgated in 40 C.F.R. § 761 Subpart D. Based on the results of soil sampling, it is likely that excavated soil will contain total PCB concentrations substantially less than 50 ppm and may be disposed in accordance with § 761.61(a)(5)(v)(A) at a permitted non-hazardous waste landfill. Excavated remediation waste

will also be sampled to determine if the waste exhibits a characteristic of hazardous waste for toxicity as defined in 40 C.F.R. 261 Subpart C which may subject the waste to land disposal restrictions and treatment standards prescribed in 40 C.F.R. 268 Subparts C and D, respectively.

After removing the soils from the affected area, confirmation sampling will be conducted to ensure that all removal objectives have been achieved. Confirmation sampling procedures will be conducted in accordance with OSWER Directive 9360.4-10, Superfund Program: Representative Sampling Guidance (EPA 540/R-95/141), and, to the extent practicable given the exigencies of the situation, in general conformance with the confirmation sampling procedures outlined in 40 C.F.R. 761 Subpart O.

Waste Pit – Material in the waste pit in the main warehouse is separated into three phases, an oil phase on top (LNAPL), a water phase in the middle, and sludge phase at the bottom (DNAPL). Based on the results of waste sampling, concentrations of PCBs and other contaminants in the water phase in the waste pit are low enough that the water may be effectively treated using activated carbon treatment and discharged to the Site. Phase separated wastes will be managed in accordance with 40 C.F.R. 761.79. PCB-contaminated LNAPL and DNAPL will be removed and transported for off-Site disposal. The DNAPL and LNAPL phases may require thermal treatment, if the concentration of total PCBs exceeds 500 ppm as generated. Otherwise, waste exceeding 50 ppm will be stabilized and transported for disposal at an appropriately permitted TSCA facility. The floor of the main warehouse must be removed in order to access the subfloor waste pit and remove the waste contained therein. Concrete demolition debris will be managed in general accordance with disposal requirements for PCB remediation waste promulgated in 40 C.F.R. § 761 Subpart D.

After removing all waste material from the pit to the extent practicable, the base and sidewalls of the pit will be physically cleaned. If the structural integrity of the pit is found to be substantially compromised, impacted material underlying the pit will be removed to the extent readily achievable and samples will be collected from underlying soils to evaluate the extent of leakage. The waste pit will then be filled with gravel and sand to support the construction of a concrete cap that meets the specifications specified in 40 C.F.R. 761.61(a)(7), and the building will be placarded as stipulated therein.

Lagoon(s), ponds, and associated drainage – PCB contamination in lagoons and ponds represents an excluded spill as defined in 40 C.F.R. § 761.120(d). As such, the cleanup levels are site-specific risk-based standards developed considering the toxicity of the contaminants and the routes of exposure. Based on the results of sampling, water in the lagoons and ponds does not contain measurable concentrations of PCBs or other contaminants. Nonetheless, Lagoons 1 and 2 will be dewatered in order to access PCB-contaminated sludge at the base of the lagoon. Pumped water will be cycled through a frac tank or settling tanks to minimize suspended solids, if needed. Prior to on-site discharge, water will be sampled to ensure that concentrations of total PCBs is less than the 0.5 µg/L decontamination standard for water as promulgated in 40 C.F.R. 761.79(b)(1)(iii), and other contaminants are less than applicable Water Quality Standards in the State of Missouri, as defined in the Missouri Code of State Regulations (10 CSR 20-7). If any of these standards are not achieved, water will be pumped through a three-stage carbon filtration system and resampled prior to discharge.

Sludge/sediment in the concrete lined Lagoon 1 contained total PCB concentrations as high as 160,000 µg/kg. Ecologically protective Cleanup Goals (CUGs) were established in consultation with an EPA Region 7 ecological toxicologist and a wetlands specialist. The CUGs represent risk-based adjustments to consensus-based sediment quality guideline (SQG) for freshwater ecosystems that reflect Probable Effect Concentrations (PECs). Sediments exceeding the CUG for total PCBs of 406 mg/kg will be removed and transported off-Site for disposal. Although PCBs were not detected in Lagoon 2, sediment concentrations of other site-related CERCLA hazardous substances including chromium, copper, and zinc exceed applicable CUGs. Sediment in Lagoon 2 exceeding applicable CUGs will be removed and transported off-Site for disposal. The retention structures in Lagoon 1 and Lagoon 2 will then be filled or demolished to render the lagoons inoperable. Ponds 1 and 2, and associated drainages, exhibited substantially lower contaminant concentrations and will not be addressed during this removal action.

Turtles and other aquatic or terrestrial organisms encountered during dewatering of Lagoons will be relocated to other ponds, wetlands, and/or freshwater channels on the Site. Ponds and other permanent and ephemeral aquatic habitats are present on the Site which will not be disturbed or impacted during this removal action. The monitoring for and relocation of aquatic and terrestrial organisms during Lagoon dewatering will be conducted in direct coordination with EPA Region 7 Watershed Support Wetlands & Stream Protection staff and with the Missouri Department of Conservation.

After Lagoons 1 and 2 have been dewatered, and contaminated sludge/sediment has been removed to the extent practicable, confirmation samples will be collected from underlying concrete and sediment. Confirmation sampling procedures will be conducted in accordance with OSWER Directive 9360.4-10, Superfund Program: Representative Sampling Guidance (EPA 540/R-95/141), and, to the extent practicable given the exigencies of the situation, in general conformance with the confirmation sampling procedures outlined in 40 C.F.R. § 761 Subpart O. If residual contaminant concentrations exceed CUGs the lagoons will be capped in accordance with the specifications in 40 C.F.R. § 761.61(a)(7) of TSCA and §264.310(a) of RCRA.

Wetland Areas - Composite and grab soil/sediment samples were collected from the field located between the facility and Fire Prairie Creek. This area of the site is designated as an emergent wetland in the National Wetlands Inventory. Wooded areas north of the on-site ponds extending to Fire Prairie Creek are designated as a forested/shrub wetland in the National Wetlands Inventory. Composite soil/sediment samples were collected from the field located between the facility and Fire Prairie Creek. These samples were considered sediment in the Removal Assessment Report (Tetra Tech, 2011). The ecological assessment of the soil data completed by EPA incorporated the use of toxicity reference values available in the Ecological Soil Screening Level (Eco-SSL) Guidelines (EPA, 2003). Based on the result of the ecological risk assessment, PCBs, cadmium, and zinc exceed recommended cleanup goals for these ecosystems. Additional sampling will be conducted to define the magnitude and extent of ecological risk, giving consideration to any damages that may be posed to the habitat due to cleanup actions to address contaminants in soil and sediment. The extent of excavation, capping, or other mitigative measures will be defined balancing the benefits and impacts of excavation within these sensitive habitats. These activities will be conducted in accordance with provisions of Section 404 of the Clean Water Act. Based on the results of soil/sediment sampling already completed in wetland areas, excavated soil/sediment contain total PCB concentrations

substantially lower than 50 ppm, with other contaminants unlikely to exhibit a characteristic of hazardous waste for toxicity as defined in 40 C.F.R. 261 Subpart C, and may be disposed at a permitted non-hazardous waste landfill.

Facility Structures – PCB contamination was identified in the wipe samples, concrete chip samples, and floor sweep samples from inside the main warehouse. The cleanup level for contaminated porous and non-porous surfaces as defined by TSCA is generally less than or equal to 1 ppm or 10 µg/100 cm² total PCBs, respectively, for a “high occupancy area scenario,” or 25 ppm total PCBs for a low occupancy area scenario. High occupancy and low occupancy areas are defined at 40 C.F.R. § 761.3 and are determined based on the exposure frequency and exposure duration for potential receptors. Different exposure scenarios may apply to different areas of the Site. Total PCB concentrations in wipe samples and concrete chip samples exceeded the high occupancy area cleanup levels but not the low occupancy area cleanup levels. Depending on the intended future use of the contaminated areas of the main warehouse, some interior surfaces may need to be decontaminated, encapsulated, and/or controlled through institutional controls.

The main warehouse currently appears to be in relatively good condition and is secure. While there are documented releases into the environment from the waste pit, which will be addressed through this removal action, there have been no known releases of PCBs into the environment from the physical components of the structure, and there appears to be no substantial threat of such a release. Future alterations or demolition of the structure, if not conducted properly, may result in a release, or substantial threat of a release, of a hazardous substance.

Groundwater – The high concentrations of PCBs and other contaminants in surface soils, the waste pit, and the lagoons is a potential source of groundwater contamination as a function of the ratio of the chemical's sorbed concentration to the dissolved concentration. Due to the predominately insoluble nature of the PCBs in hydraulic oil, a significant release to groundwater is not expected to have occurred. Three pre-packed direct push monitoring wells were installed on the site. A groundwater sample from one of these wells, located in close proximity to the main warehouse between the building and Lagoon 1, contained concentrations of 1,1-dichloroethene and 1,2-dichloroethane exceeding federal drinking water standards and regional screening levels, respectively. The wells on the site were screened in the surficial water table at depths ranging from 28-34 feet below ground surface. A limited detection monitoring program will be required to determine the extent to which hazardous wastes or constituents released from the facility is contaminating ground water.

Post Removal Site Controls – Institutional controls will be required because some hazardous substances will remain on the site at levels that do not allow unlimited use and unrestricted exposure to soils; namely, contaminated porous and non-porous surfaces inside facility structures, soils underlying the main warehouse and lagoons that will not be excavated due to technical impracticability, and limited groundwater contamination. TSCA regulations include standards and associated requirements for the use of buildings with PCB contamination in porous and non-porous surfaces, and TSCA also requires the use of institutional controls (deed restrictions) if a site cleanup activity includes the use of a cap or fencing to prevent exposures, or if low occupancy area cleanup level is applied during the response action, as described in 40 C.F.R. 761.61(a)(8). Therefore, EPA and MDNR will coordinate with the current property

owners to identify and select institutional controls that are necessary to protect human health and the environment after the removal action is complete. EPA expects that institutional controls will be implemented and maintained by the property owner.

A restrictive environmental covenant will be placed on the property that will, in perpetuity, obligate the owner to maintain the property use controls and to notify any potential purchaser of the known extent of contamination and the restrictions on use of the property. The covenant may also stipulate engineering control requirements, use limitations, or other conditions regarding the use of facility structures due to residual PCB contamination on interior facility walls, floors, and other structural surfaces. Such covenant would specify the location and extent of all residual contamination, require EPA and/or MDNR approval prior to any changes to use of facility structure or construction activities which disturb the residual contamination, and require notification for anyone engaged in activities which could result in exposure to residual contamination such as utility or construction workers. Such notice would be consistent with EPA guidance on institutional controls and the Missouri Environmental Covenants Act (MoECA), found in the Missouri Revised Statutes at sections 260.1000 to 260.1039, RSMo. Institutional controls would remain in place until contamination at the Site reaches levels considered safe for any-use based upon an evaluation of risk in accordance with appropriate and applicable EPA guidance and directives.

2. Contribution to remedial performance

The actions proposed in this Action Memorandum should not impede any future remedial plans or other responses. The Site is currently not on the NPL or proposed for listing.

3. Engineering Evaluation/Cost Analysis (EE/CA)

Since this is a time-critical removal action, an EE/CA was not developed for this action. EPA considered using alternate treatment technologies rather than off-site disposal. In fact, EPA's Office of Research and Development (ORD) assisted the OSC with pilot-scale testing to evaluate the treatability of the PCB-contaminated oil and sludge in the waste pit from this Site using a combination of oxidizing and reducing reagents. Due to less than anticipated contaminant reduction, this alternative was eliminated from further consideration. EPA's policy regarding the use of alternative technologies for removal actions, as described in the Office of Solid Waste and Emergency Response Directive 9380.2-1 "Administrative Guidance for Removal Program Use of Alternatives to Land Disposal," is that the alternative technology must provide for timely response and protection of human health and the environment. The policy also establishes three criteria in considering the use of alternative technologies: effectiveness, implementability, and cost.

Thermal destruction is identified in the Superfund Technology Screening Guide for Treatment of CERCLA Soils and Sludges (EPA/540/2-88/004) as the only demonstrated effective treatment technology for PCBs. Other potentially effective technologies include dechlorination, bioremediation, chemical extraction, soil washing, and solidification/stabilization.

Soil washing and solidification/stabilization were not considered viable treatment options as both are considered only potentially effective for PCB remediation and further research would

compromise the removal objective of timely response. The treatment alternatives of thermal desorption, solvent extraction or dechlorination are estimated to add significant costs to the project, relative to excavation and landfilling, with little or no additional risk reduction anticipated than would be achieved by excavation and landfilling. Incineration is timely, protective of human health and the environment, effective, and implementable. However, this technology is estimated to cost an average of four to six times that of excavation and off-site landfilling, with little or no anticipated additional risk reduction than would be achieved by excavation and landfilling. Therefore, transportation for off-Site disposal was selected.

4. Applicable or relevant and appropriate requirements (ARARs)

Section 300.415(j) of the NCP provides that removal actions shall, to the extent practicable considering the exigencies of the situation, attain ARARs under federal environmental or state environmental facility siting laws. The following specific ARARs have been identified for this removal action.

Federal

- Toxic Substances Control Act (TSCA), 40 C.F.R. 761.61, describes disposal and cleanup requirements, as well as verification sampling of PCB spills. Specific requirements are identified in Section V.A.1, Description of the Proposed Action. While this is a CERCLA response action, with applicable guidance and regulations governing such responses, TSCA is an identified ARAR and EPA expects to comply with the standards set forth in these regulations to the extent practicable and practical given the widespread nature of the environmental impacts, the costs associated with the response, and the exigencies of the situation.
- Occupational Safety and Health Act Standards at 29 CFR part 1910 will be applicable to all actions.
- Department of Transportation (DOT) regulations at 49 CFR parts 107 and 171 to 177, DOT hazardous material transportation regulations, may be relevant and appropriate for transportation of the contaminated soils.
- The CERCLA off-site rule promulgated pursuant to CERCLA section 121(d)(3), 42 U.S.C. § 9621(d)(3), and formally entitled "Amendment to the National Oil and Hazardous Substances Pollution Contingency Plan; Procedures for Planning and Implementing Off-Site Response Action: Final Rule," 58 Fed. Reg. 49200 (Sept. 22, 1993), codified at 40 CFR in situ § 300.440, will be applicable for wastes disposed off-site.
- Alternative Treatment Standards for Contaminated Soil, codified at 40 CFR § 268.49, may be applicable if contaminated soil exhibits any characteristic of hazardous waste at the time it is generated.
- The AOC policy, as articulated in the NCP, may be relevant and appropriate if contaminated soils need to be treated on-site. Treatment within an AOC will be

conducted in conformance with applicable policy and guidance. See 53 FR 51444 for a detailed discussion in the proposed NCP preamble; and 55 FR 8758-8760, March 8, 1990, for the final NCP preamble discussion. See also, the March 13, 1996, EPA memo, "Use of the Area of Contamination Concept During RCRA Cleanups," and most recently the "Hazardous Remediation Waste Management Requirements (HWIR media)" in Federal Register / Vol. 63, No. 229 / Monday, November 30, 1998.

- Section 402 of the Clean Water Act references Best Management Practices (BMPs) for storm water management. Storm water management BMPs will be implemented as appropriate to mitigate runoff of contaminated soil during this removal action.
- Section 404 of the Clean Water Act (CWA) establishes a program to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. If any site activities are determined to fall under CWA 404, these activities will be coordinated through the U.S. Army Corps of Engineers and EPA Region 7's Water, Wetlands & Pesticides Division.

State

- On August 14, 2015, the OSC submitted a request to MDNR to identify site-specific state ARARs. MDNR submitted a response letter dated October 7, 2015, outlining the state of Missouri's ARARs and relevant guidance, including laws and regulations related to the state Air Conservation Commission, Clean Water Commission, Geology & Land Survey, Hazardous Substances Emergency Response, Hazardous Waste Management, and Solid Waste Management. MDNR will be consulted directly regarding pertinent elements of this action to ensure that state ARARs are considered to the full extent practicable.

5. Project schedule

Once this Action Memorandum is signed, it is anticipated that cleanup actions will commence within 120 days. Total project length will be less than one year.

B. Estimated Costs

The costs associated with this removal action are estimated as follows:

<u>Extramural Costs:</u>	
Removal Costs	\$ 1,656,000
Contingency (20%)	<u>331,200</u>
Removal Project Ceiling	\$ 1,987,200

The EPA direct and indirect costs, although cost recoverable, do not count toward the total removal project ceiling for this removal action. Refer to the enforcement section for a breakout of these costs.

VI. EXPECTED CHANGE IN THE SITUATION SHOULD ACTION BE DELAYED OR NOT TAKEN

Delayed action will result in a continued threat to public health, or welfare, or the environment, and in particular will continue to expose residents and workers to the contaminated soils exceeding federal action levels.

VII. OUTSTANDING POLICY ISSUES

None.

VIII. ENFORCEMENT

Certain elements of this Action Memorandum will be enforced via an enforceable legal document. See the attached Confidential Enforcement Addendum. For NCP consistency purposes, it is not a part of this Action Memorandum. The total EPA costs for this removal action based on full cost-accounting practices are estimated to be:

Direct Extramural Costs	\$ 1,987,200
Direct Intramural Costs:	150,000
EPA Indirect Costs (50.21 percent of all costs)	<u>1,073,088</u>
Total Project Costs	\$ 3,210,288

Direct costs include direct extramural and direct intramural costs. Indirect costs are calculated based on an estimated indirect cost rate expressed as a percentage of site-specific direct costs, consistent with the full cost-accounting methodology effective October 2, 2000. These estimates do not include prejudgment interest, do not take into account other enforcement costs, including Department of Justice costs, and may be adjusted during the course of a removal action. The estimates are for illustrative purposes only and their use is not intended to create any rights for responsible parties. Neither the lack of a total cost estimate nor deviation of actual total costs from this estimate will affect the United States' right to cost recovery.

IX. RECOMMENDATION

This decision document represents the selected removal action for addressing the hazardous substances at the Former Lyons Diecasting Site in Buckner, MO. The removal action was developed in accordance with CERCLA, as amended, and is not inconsistent with the NCP. This decision is based on the Administrative Record for the Site.

Conditions at the Site meet NCP Section 300.415(b) criteria for a removal action, and I recommend your approval of the proposed fund-lead removal action. The removal project ceiling, if approved, will be \$1,987,200. This amount comes from the Regional Removal Advice of Allowance.

Approved:

Mary P. Peterson
Mary P. Peterson, Director
Superfund Division

4/4/2016
Date

Attachments